Instruction Manual for Piston Cylinder Bore-Up (117.2 cc) Kit for GRAND Axis 100

Item Nos.：**０１－０５－４４５５**
：**０１－０２－３０７０** (Piston kit)
Applicable models and frame Nos
YA100　SB01J～
YA100W　SB06J～

Thank you for purchasing one of our TAKEGAWA's products. Please strictly follow the following instructions in installing and using the products. Before fitting the products, please be sure to check the contents of the kit. Should you have any questions about the products, please kindly contact your dealer.

Please read the following instructions before installation.

◆Do shakedown more than 100 km at 40 km / h or less. Besides, the accelerator opening must be at 1 / 2 or less.
◆For shakedown driving, inject engine oil to the fuel tank with the ratio of gasoline to engine oil at 100:1.
◆Set a main jet of a stock carburetor higher by about #5 to #10 notches.
◆Fuel must be supreme unleaded high-octane gasoline.
◆Determine the heat value of a spark plug depending on how much it is burnt. Please always use a resistor spark plug.

◎ We do not take any responsibility for any accident or damage whatsoever arising from the use of the products not in conformity with the instructions in the manual.
◎ We shall be held free from any responsibility or compensation whatsoever for any glitch in parts other than ours if the glitch takes place after installation and use of this product.
◎ If you make alterations to the products outside our factory, we shall be held free from any guarantee of the products.
◎ You are kindly requested not to contact us about the combination of our products with other manufacturers'.
◎ These products are designed for exclusive use in the above-mentioned types of motorcycles and frame numbers only. Please take note that these productst cannot be mounted on other types of motorcycles.
◎ Work correctly referring to YAMAHA's right service manual for the above-mentioned machines.
Item No. of a service manual　：5FA-28197-J0
Item No. of a supplemental manual (for YA100W)　：5FA-28197-J5
◎ Do the installation work with great care, strictly following the installation procedures. Besides, this instruction manual, as well as YAMAHA 's genuine parts service manual, is written with those persons in mind who have basic skills and knowledge in tuning. Therefore, we recommend those who are technichally inexperienced or do not have enough tools to ask a technically-reliable specialist shop for the work.
◎ Some of bolts, nuts, dowel pins, and packings will be reused. However, be sure to replace worn-down or severely-damaged ones with new ones.
◎ This piston kit cannot be used even if a stock cylinder is bored.
This piston kit is repair parts exclusively for 01-05-4455.

⚠ CAUTION The following show the envisioned possibility of injuries to human bodies and property damage as a result of disregarding the following cautions.

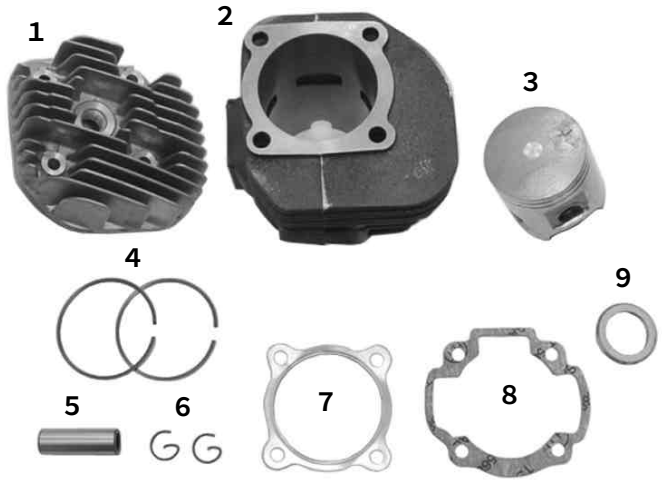
- Always try to drive your motorcycle at a legal speed, abiding by the laws.
- Work only when the engine and the muffler are cool. (Otherwise, you will burn yourself.)
- Prepare right tools for the work, and do the work in the proper and right way.
  (Otherwise, improper work could cause breakage of parts or injuries to yourself.)
- Always use a torque wrench to screw bolts and nuts tight and securely to the specified torque.
  (Improper torque could cause these parts to get damaged or fall off.)
- As some products and frames have sharp-pointed or protruding portions, please work with your hands protected.
  (Otherwise, you will suffer injuries.)
- Before riding, always check every section for slack in parts like screws. If you find slack ones, screw them securely up to the specified torque.
  (Or improper attachment of parts may cause parts to come off.)
- Always use new gaskets and packings. Besides, check carefully those parts to be reused, and in case wear or damage is detected on the parts, always replace these parts with new ones.

⚠ WARNING The following show the envisioned possibility of human death or serious injuries to human bodies as a result of disregarding the following cautions.

- Always start the engine in a well-ventilated place, and do not turn the engine on in an airtight place.
  (Otherwise, you will suffer from carbon monoxide poisoning.)
- When you notice something abnormal with your motorcycle while riding down a road, stop riding immediately and park your motorcyle in a safe place. (Otherwise, the abnormaility could lead to an accident.)
- Before doing work, place the motorcycle on level ground to stablize the position of your motorcycle for safety's sake.
  (Otherwise, your motorcycle could overturn and injure you while you are working.)
- Check or perform maintenance of parts correctly according to the procedures in the instruction manual or a service manual.
  (Improper checking or maintenance could lead to an accident.)
- If you find damaged parts when checking and performing maintenance, do not use these parts any longer, and replace them with new ones.
  (The continued use of these damaged parts as they are could lead to an accident.)

◎ Please be informed that, mainly because of improvement in performance, design changes, and cost increase, the product specifications and prices are subject to change without prior notice.
◎ This manual should be retained for future reference.

～Kit Contents～



No.	Parts Name	Qty
1	Cylinder head	1
2	Cylinder	1
③	Piston	1
④	Piston rings	2
⑤	Piston pin	1
⑥	Piston pin circlips	2
⑦	Cylinder head gasket	1
⑧	Cylinder gasket	1
⑨	Exhaust pipe gasket	1

○ mark indicates the contents of a piston kit.

～Installation Procedures～

★ Stabilize the vehicle in a level place securely with a center stand.
The installation work must be done only when the engine and the muffler are cold.

○Removal

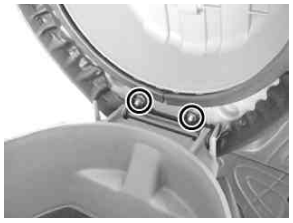
★ Take off all dirt like the dust and oil on each part as you detach it.

★ Keep the removed bolts and nuts in an orderly way so you can recall where to fix them.

1. Cover Removal

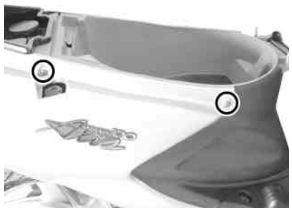
◇ Unfasten each screw, and remove left and right side cover malls.

◇ Unfasten two nuts, and remove the seat.



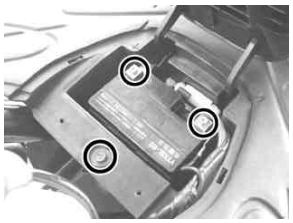
◇ Unfasten each bolt, and remove the rear luggage rack.

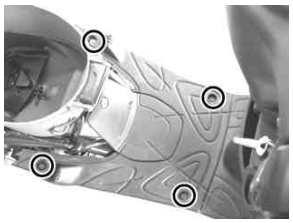
◇ Unfasten each two screws on the right and left side covers.



◇ Unfasten each screw, and remove the front side cover.

◇ Disconnect lead wires to the battery, unfasten each screw, and remove the foot-rest board.

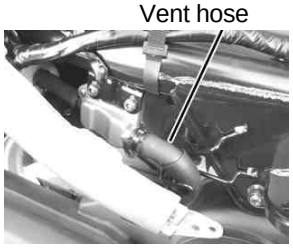




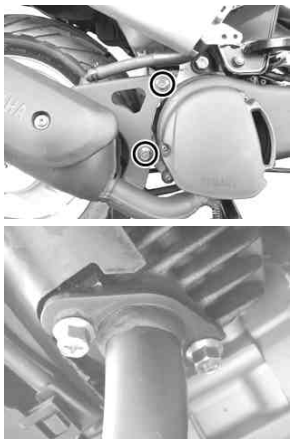
2. Muffler Removal

◇ Disconnect the bent hose from the air induction (in the case of Yamaha YA100W).

Vent hose



◇Unfasten each two bolts on the cylinder side and on the stay to remove the muffler.

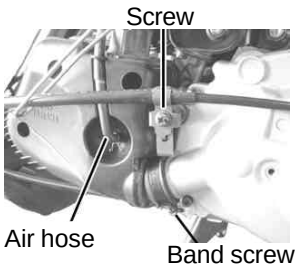


3. Air Cleaner Case Removal

◇Disconnect the air hose from the carburetor. (in the case of YA100W).

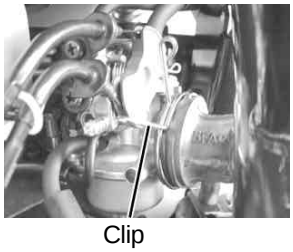
◇ Remove a screw along with a cable guide and a collar.

◇ Loosen a screw on the band of the tube connecting to the crankcase cover.



◇Unfasten a clip of the tube connecting to the carburetor, and remove the air cleaner case.

★ **Be careful not to get any dust in the carburetor.**

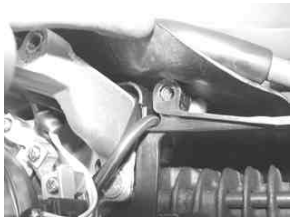


4. Air Shroud Removal

◇Pull out the spark plug cap.

◇ Unfasten three screws and a tapping screw to remove an air shroud on the fan.

◇Remove two oil line hoses from the air shroud on the cylinder.

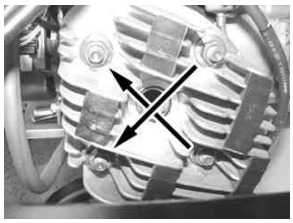


◇ Remove the air shroud on the cylinder.

5. Removal of Cylinder Head, Cylinder, and Piston

◇Remove the spark plug.

◇ Loosen four nuts diagonally in several steps, and remove the cylinder head.



◇Re move the cylinder.

◇Plug the crank case with cloth not to let any foreign material fall into it.

◇ Remove one of the circlips, and take the piston pin out.

◇ Detach the bearing.

◇ Get rid of the remaining gasket chips completely with a scraper or a cutter, and take all dirt off by cloth.

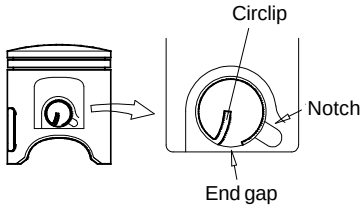
○Installation

1. Piston Installation

◇Install a circlip to one of two mounting places on the kit's piston.

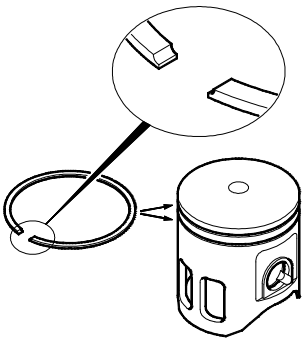
★ **Rotate the circlip to check that it is fixed securely.**

★ **Place a circlip so its end gap does not meet with the notch on the pin hole.**

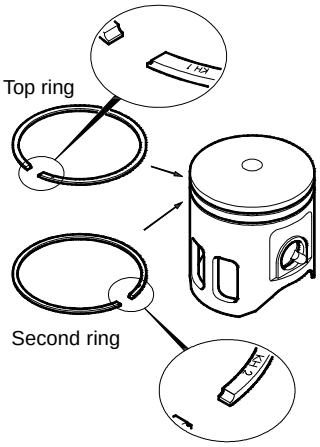


◇ Fix the piston rings.

★Piston rings have a different design on each side. Install them in the following direction.

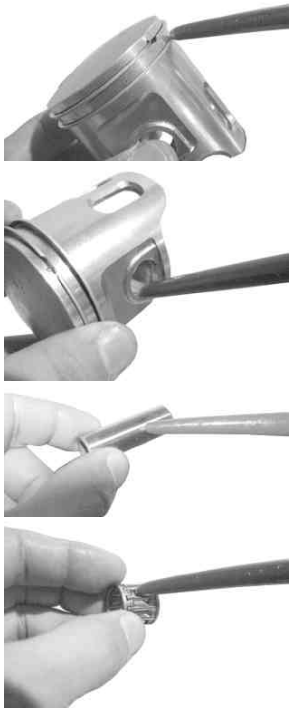


★ In case the top and second rings of piston rings are not the same, install them carefully referring to the illustrations below.

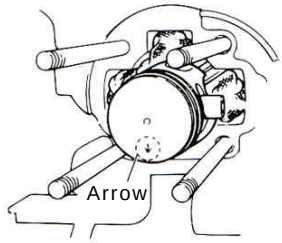


Fix the rings with stamped surfaces facing upwards.

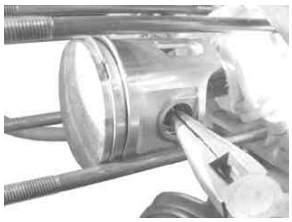
◇ Apply engine oil to the piston rings, the piston pin holes, the piston pin, and the bearing.



◇Insert the bearing into the con'rod, and install them as piston's arrow points downward (to the exhaust side).

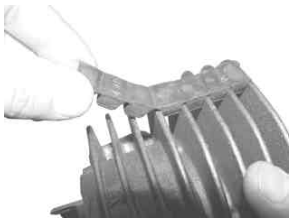


◇Install a circlip to the other pin hole on the piston.



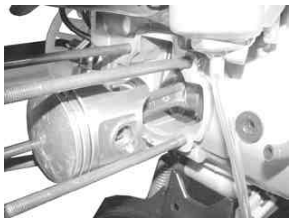
2. Cylinder Installation

◇ Remove the rubber from the stock cylinder, and install it to kit's cylinder.



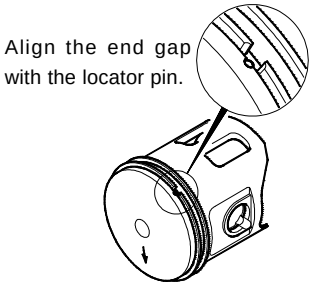
◇Remove the pluged cloth.

◇ Fix a cylinder gasket.



◇ Apply engine oil to the inside surface of the cylinder.

◇ Align ring's end gap with the locator pin on the piston, and instal the piston to the cylinder.



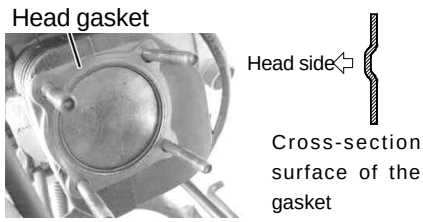
★CHECK ! !

Holding the cylinder by hand to prevent it from moving, rotate the fan and move the piston. Unless the piston moves smoothly, the piston rings may not be attached correctly. In this case, do the cylinder installation again.

◇Wipe the mating surface for the cylinder head well.

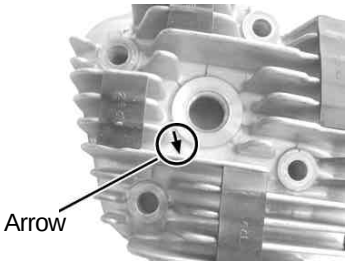
3. Cylinder Head Installation

◇ After wiping the mating surface well, install the head gasket.



◇ Remove the rubber from the stock cylinder head, and install it to kit's cylinder head.

◇ Install the cylinder head as the arrow on the head points downward (to the exhaust side).

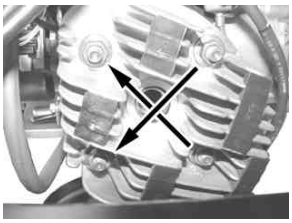


◇ Loosely tighten the four cylinder head nuts by hand.

◇ Working the kick starter several times, fully tighten the four nuts diagonally to the specified torque.

Specified Torque

14 N • m (1.4 kgf • m)



◇ Screw the spark plug by hand at first, and then fully tighten it.

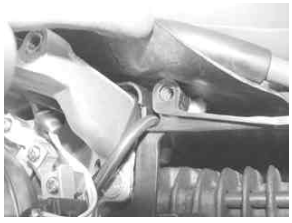
Specified Torque

20 N • m (2.0 kgf • m)

4. Air Shroud Installation

◇Install a cylinder's air shroud with care not to jam the deflector.

◇Install the two oil line hoses to the air shroud securely.

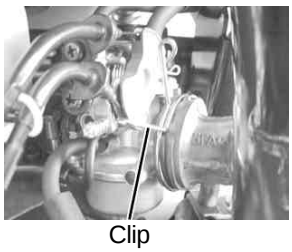


◇Install fan's air shroud with care not to shut the two oil like hoses in, and install three screws and a tapping screw.

◇Install the spark plug cap.

5. Air Clearner Case Installation

◇Insert the connecting tube to the carburetor, and fix the clip.



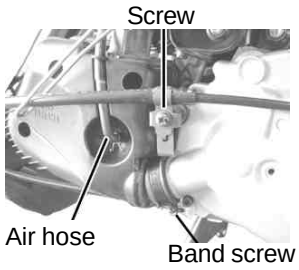
◇Insert the connecting tube into the crankcase cover, and tighten the screw on the band.

◇Fix the air cleaner case along with the guide and the collar by a screw.

Specified Torque

7 N • m (0.7 kgf • m)

◇Connect the air hose with the air cleaner case (in case of YA100W).



6. Muffler Installation

◇Loosely tighten two bolts on the cylinder side, and two bolts on the stay side.

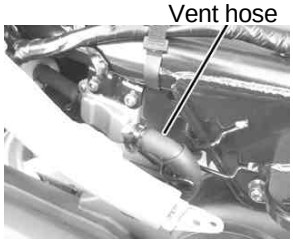
◇Fully tighten the two bolts on the cylinder side at first, and then those on the stay side.

Specified Torque

Cylinder side：9 N • m (0.9 kgf • m)

Stay side：26 N • m (2.6 kgf • m)

◇Connect the vent hose with the air induction (in case of YA100W).



7. Installation of Covers

◇Install the foot rest board by each screw, and connect battery's lead wire.

◇Install the front side cover by each screw.

◇Fix the tapping screws for right and left side covers.

◇Install the luggage rack by each bolt.

◇Install the seat by the two nuts.

◇Install the right and left side cover malls by each screw.

8. Engine Starting

◇Check every section for slacks in screws, nuts or the like.

◇Make sure that engine oil is remaining in a specified amount or more.

◇Drive the engine in a well-ventilated safe place with great care, and warm up the engine.

◇Check that there is no abnormal noise from the engine or oil leak in every gasket.

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